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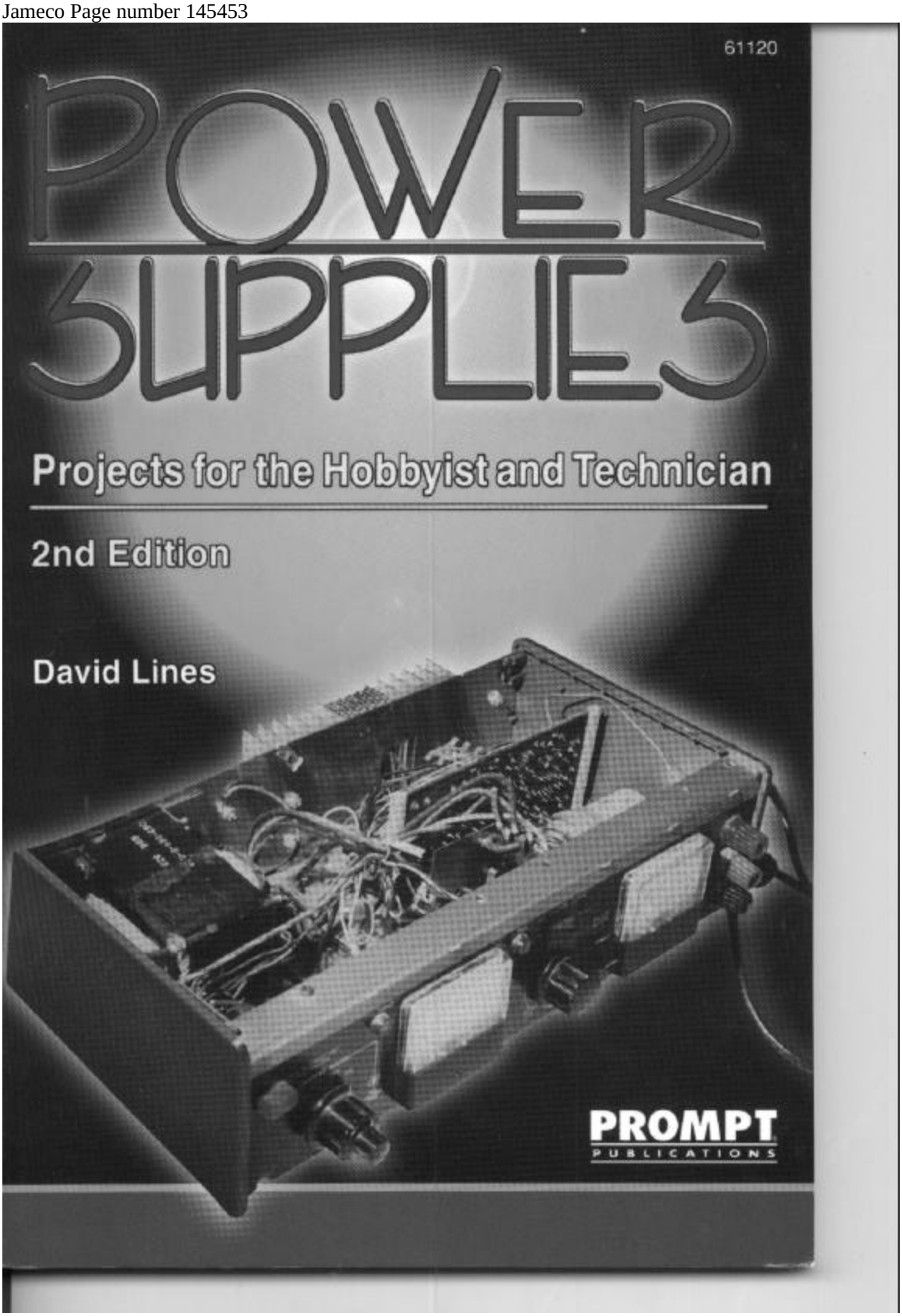

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Preface

All electronic equipment requires a source of power--a power supply. A power supply can be a separate assembly, or integrated into an electrical or electronic system. It supplies load current at a particular voltage or voltages to the system's circuits. In most cases, a power supply is required to control its output voltage (or voltages) to within close limits as its input voltage and/or output load are changed. This is a regulated power supply. If the output were not regulated, the variations in its output voltage could become signals within the system circuits being powered and cause errors, distortions, extra signals, etc.

Building Power Supplies has two goals. First, to help you, the reader, understand the basic functions of each of the components in a power supply and how the components work together to function as a power supply. Second, to show how to build useful working power supplies. Easy-to-understand illustrations visually enhance the learning.

Building Power Supplies begins with a refresher on basic sources of dc and ac power. If you already know these basic principles, you may bypass this material and start with Chapter 2.

Chapter 2 describes the functions of transformation, rectification, and filtering that are required to convert common ac line voltage to a dc voltage. It explains the components needed and identifies the important parameter specifications. The system output is an unregulated voltage.

Chapter 3 begins a pattern that continues through Chapters 6, 8 and 9: The basic principles of a system regulating a dc voltage are discussed, and then instructions are presented for building useful power supplies. Chapters 3 and 4 deal with power supply circuits that operate continuously in the linear region, and Chapters 5 and 6 deal with switching power supplies. Chapter 8 revisits previous designs and shows the changes that must be made to increase the current output. Chapter 9 is a more advanced switching power supply, also with the higher current output. Specifications, component selection, parts lists, construction plans, design techniques and operating principles are covered. Most of the parts listed are readily available from Radio Shack.

Preformance measurements of each power supply, a calibration procedure for the switching power supplies of Chapters 6 and 8, and troubleshooting tips are contained in Chapter 7.

Building Power Supplies should be a good teaching tool because, if you complete it, you should understand power supply system principles, and, if you wish, you can build a useful power supply. those are our objectives. We hope we have succeeded.

D.L.

M.P.I.

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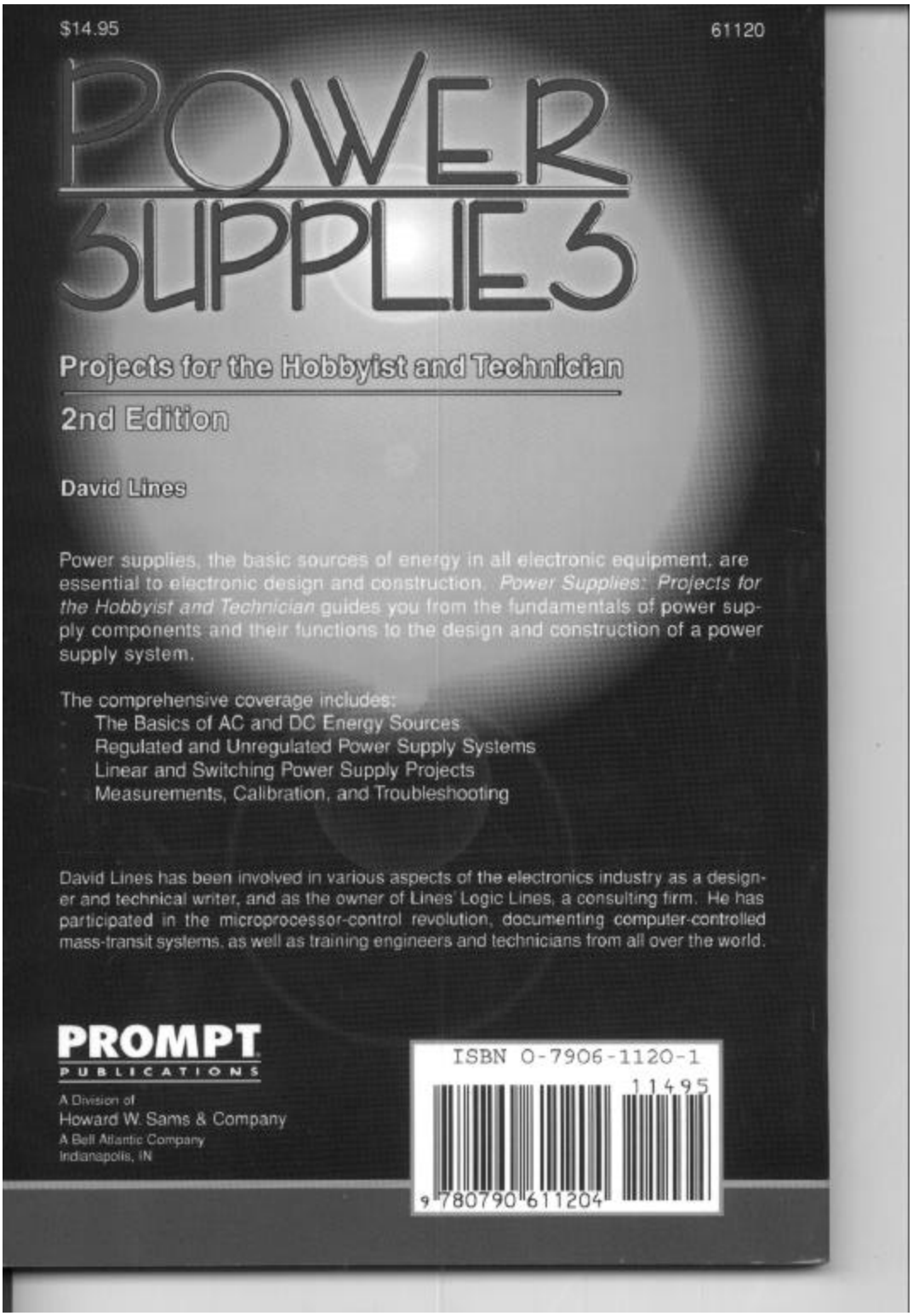
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POWER SUPPLIES
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2nd Edition
David Lines
Power supplies, the basic sources of energy in all electronic equipment, are essential to electronic design and construction. Power Supplies: Projects for the Hobbyist and Technician guides you from the fundamentals of power supply components and their functions to the design and construction of a power supply system.
The comprehensive coverage includes:
- The Basics of AC and DC Energy Sources
- Regulated and Unregulated Power Supply Systems
- Linear and Switching Power Supply Projects
- Measurements, Calibration, and Troubleshooting
David Lines has been involved in various aspects of the electronics industry as a designer and technical writer, and as the owner of Lines' Logic Lines, a consulting firm. He has participated in the microprocessor-control revolution, documenting computer-controlled mass-transit systems, as well as training engineers and technicians from all over the world.
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